

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:)
Adamo SALA)
Serial No.: Not yet assigned) Group Art Unit: Not yet assigned
Filed: January 11, 2002) Examiner: Not yet assigned
For: TYRE ASSEMBLING APPARATUS)

Assistant Commissioner for Patents
Washington, DC 20231

Sir:

PRELIMINARY AMENDMENT

Prior to the examination of the above-captioned application, please amend this application as follows:

IN THE TITLE:

Please amend the title, as follows:

TYRE-ASSEMBLING APPARATUS

IN THE SPECIFICATION:

Please amend the specification, as follows:

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Add two section headings, a section subheading, and a paragraph immediately after the new title TYRE-ASSEMBLING APPARATUS, as follows:

--CROSS-REFERENCE TO RELATED APPLICATIONS

This application is a continuation application of International Application No. PCT/EP00/05972, filed June 27, 2000, in the European Patent Office, the contents of which are relied upon and incorporated herein by reference; additionally, Applicant claims the right of priority under 35 U.S.C. § 119(a) - (d) based on patent application No. 99830497.6, filed July 30, 1999, in the European Patent Office; further, Applicant claims the benefit under 35 U.S.C. § 119(e) based on prior-filed, copending provisional application No. 60/155,129, filed September 22, 1999, in the U.S. Patent and Trademark Office.

BACKGROUND OF THE INVENTION

Field of the Invention--

Page 1, line 20, add section subheading --Description of the Related Art-- prior to the start of the paragraph beginning "As far as tyre manufacture"

Page 5, line 8, insert the following paragraph and section heading prior to the start of the paragraph beginning "The present invention originates"

--U.S. Patent No. 3,990,931 discloses a tyre assembling drum provided with pairs of pivotable arms journaled each at one end to a respective half of the drum, and joined to each

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other at a pivoting connection laying in an equatorial plane. The pivotable arms are subjected to radially expand in the region of their mutual linking connection, when the halves approach each other to conform the carcass tyre in a toroidal shape.

SUMMARY OF THE INVENTION--

Page 5, line 26 - page 6, line 6, amend the paragraph beginning "In more detail, it is an object of the present invention . . .", as follows:

In more detail, the present invention provides a tyre assembling apparatus, wherein each of said sectors comprises: a holding member defining an engagement seat of an annular structure for anchoring to the bead-part of a carcass sleeve fitted on said drum; and a supporting member linked, relative to said holding member, in a position axially internal to the latter and movable between a first operating condition, in which it is axially spaced apart from the holding member to offer a supporting seat to at least one ply being part of said carcass sleeve, and a second operating condition, in which it is disposed close to the holding member to enable mutual approaching of said halves. The supporting members associated with the first and second halves, respectively, have abutment surfaces both facing each other and spaced apart from each other by a smaller amount than the stroke carried out by said halves between their spaced-apart condition and their approaching condition. The respective abutment surfaces of the supporting members abut against each other in the approaching condition.

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Page 6, lines 23-28, delete in its entirety the paragraph beginning "Preferably, the supporting members associated with the first and second halves"

Page 10, line 8, add section heading --BRIEF DESCRIPTION OF THE DRAWINGS-- prior to the start of the paragraph beginning "Further features and advantages"

Page 11, line 23, add section heading --DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS-- prior to the start of the paragraph beginning "With reference to the cited drawings"

Add a new page 29 after the claims, adding the following ABSTRACT OF THE DISCLOSURE. A new, separate page 29 including the ABSTRACT OF THE DISCLOSURE is enclosed.

--ABSTRACT OF THE DISCLOSURE

A tyre-assembling apparatus includes an assembling drum, radial-movement devices, and at least one axial-movement actuator. The assembling drum includes first and second halves axially opposed along a geometric axis of the drum. Each of the halves includes a plurality of circumferentially-distributed radial sectors. The radial-movement devices associated with each of the halves selectively translate corresponding radial sectors between a contracted condition and an expanded condition. The at least one axial-movement actuator translates the halves relative to each other between an approaching condition and a spaced-apart condition. Each of the radial sectors includes a holding member and a supporting member. The holding member

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defines an engagement seat of an annular anchoring structure to a bead-part of a carcass sleeve fitted on the drum. The supporting member is linked, relative to the holding member, in a position axially-internal to the holding member and movable between first and second operating conditions.--

IN THE CLAIMS:

Please cancel, without prejudice or disclaimer, claims 2-19, and add new claims 20-37, as follows:

--20. (new) A tyre-assembling apparatus, comprising:

an assembling drum comprising first and second halves axially opposed along a geometric axis of the drum, each of the halves comprising a plurality of circumferentially-distributed radial sectors;

radial-movement devices associated with each of the halves to selectively translate corresponding radial sectors between a contracted condition, wherein the radial sectors are disposed closer to the geometric axis of the drum, and an expanded condition, wherein the radial sectors are disposed spaced apart from the geometric axis of the drum; and

at least one axial-movement actuator to translate the halves relative to each other between an approaching condition, wherein the halves are close to each other, and a spaced-apart condition, wherein the halves are spaced apart from each other along the geometric axis of the drum;

wherein each of the radial sectors comprises:

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a holding member, defining an engagement seat of an annular anchoring structure to a bead-part of a carcass sleeve fitted on the drum; and

a supporting member linked, relative to the holding member, in a position axially-internal to the holding member and movable between a first operating condition, wherein the supporting member is axially-spaced-apart from the holding member to provide a supporting seat to at least one ply that is part of the carcass sleeve, and a second operating condition, wherein the supporting member is disposed axially close to the holding member to enable mutual approaching of the halves;

wherein the supporting members associated with the first and second halves, respectively, have abutment surfaces facing each other that are spaced apart from each other by an amount smaller than a stroke carried out by the halves between the spaced-apart condition and the approaching condition, and wherein the supporting members abut against each other by respective abutment surfaces in the approaching condition.

21. (new) The apparatus of claim 20, wherein the supporting member is slidably engaged along at least one guide rod extending in cantilevered fashion from the holding member.

22. (new) The apparatus of claim 21, wherein the at least one guide rod extends in parallel to the geometric axis of the drum.

23. (new) The apparatus of claim 20, comprising at least one elastic return member operatively associated with the supporting member to elastically urge the supporting member away from the holding member.

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24. (new) The apparatus of claim 21, comprising at least one return spring associated with the at least one guide rod to elastically urge the supporting member away from the holding member.

25. (new) The apparatus of claim 21, wherein the guide rods of the supporting members associated with the first and second halves, respectively, are angularly offset relative to each other.

26. (new) The apparatus of claim 20, wherein each supporting member of the first half may be translated toward a respective holding member due to a thrust action caused by one or more supporting members of the second half during mutual approaching of the halves, and wherein each supporting member of the second half may be translated toward a respective holding member due to a thrust action caused by one or more supporting members of the first half during mutual approaching of the halves.

27. (new) The apparatus of claim 20, wherein the supporting members associated with each of the halves define a substantially-continuous cylindrical supporting surface under a radially-expanded condition.

28. (new) The apparatus of claim 20, wherein each of the supporting members has end slots slidably housing end projections provided on circumferentially-adjoining supporting members.

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29. (new) The apparatus of claim 20, wherein each of the holding members comprises an axially-inner portion and an axially-outer portion, movable selectively and independently of each other under action of the radial-movement devices.

30. (new) The apparatus of claim 20, wherein the radial-movement devices comprise:
a supporting hub coaxial with the geometric axis of the drum, slidably engaging the holding members of respective radial sectors in a direction radial to the geometric axis of the drum;

at least one radial-movement actuator operatively engaged with the supporting hub and axially movable relative thereto; and

transmission connecting rods operatively engaged between the at least one radial-movement actuator and the holding member of one of the radial sectors to cause a radial movement of the holding member following an axial movement transmitted by the at least one radial-movement actuator.

31. (new) The apparatus of claim 29, wherein the radial-movement devices comprise:
a supporting hub coaxial with the geometric axis of the drum;
first guide elements for slidably engaging the axially-inner portions of the holding members with the supporting hub, in a direction radial to the geometrical axis of the drum;

at least one first radial-movement actuator operatively engaged with the supporting hub and axially movable relative thereto;

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first transmission connecting rods operatively engaged between the at least one first radial-movement actuator and one of the axially-inner portions to cause a radial movement of the axially-inner portion following an axial movement transmitted by the at least one first radial-movement actuator;

second guide elements for slidable engaging the axially-outer portions of the holding members with the supporting hub, in a direction radial to the geometric axis of the drum;

at least one second radial-movement actuator operatively engaged with the supporting hub and axially movable relative thereto; and

second transmission connecting rods operatively engaged between the at least one second radial-movement actuator and one of the axially-outer portions to cause a radial movement of the axially-outer portion following an axial movement transmitted by the at least one second radial-movement actuator.

32. (new) The apparatus of claim 31, wherein the axially-inner portions of the holding members include powered axially-inner portions and driven axially-inner portions, wherein the powered axially-inner portions are operated by respective radial-movement devices, and wherein the driven axially-inner portions are dragged along by the radial movement of the powered axially-inner portions.

33. (new) The apparatus of claim 20, wherein at least one turning-up device is associated with each of the first and second halves to turn up a side edge of the carcass sleeve around a respective annular anchoring structure.

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34. (new) The apparatus of claim 33, wherein each turning-up device comprises:
a plurality of turning-up levers circumferentially distributed around the geometric axis of the drum, each carrying at least one pressure element facing the drum;
at least one driving member rotatably engaging each of the turning-up levers at a hinging point spaced apart from the at least one pressure element;
operation devices to axially translate the at least one driving member between a rest position, wherein the driving member is axially-spaced-apart from the radial sectors, and a working position, wherein the driving member is disposed close to the radial sectors.

35. (new) The apparatus of claim 34, wherein the hinging point of each of the turning-up levers has, relative to the geometric axis of the drum, a radial distance smaller than a radial distance measured from a corresponding pressure element when the driving member is in a rest position.

36. (new) The apparatus of claim 34, wherein the holding member of each radial sector has, at an axially-outer position, a lead-in surface converging towards the geometric axis of the drum and facing the pressure element carried by at least one of the turning-up levers.

37. (new) The apparatus of claim 34, wherein each turning-up device comprises at least one elastic element extending around the geometric axis of the drum and operating on the turning-up levers to transmit to the turning-up levers a radial-thrust action toward the geometric axis of the drum.--

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REMARKS

Applicant submits this Preliminary Amendment together with an Appendix to Amendment Dated January 11, 2002, and a patent application under 37 C.F.R. § 1.53(b).

In this Preliminary Amendment, Applicant amends the title and adds section headings, section subheadings, and an Abstract of the Disclosure to conform to U.S. practice. Applicant also amends the specification to conform the specification to International Application No. PCT/EP00/05972. Additionally, Applicant adds claims to the right of priority and benefit. Further, Applicant cancels, without prejudice or disclaimer, claims 2-19, and adds new claims 20-37, which include the same subject matter as the original claims, to improve clarity. The originally-filed specification, claims, abstract, and drawings fully support the amendments to the specification and the addition of new claims 19-36. No new matter was introduced.

If there is any fee due in connection with the filing of this Preliminary Amendment, please charge the fee to our Deposit Account No. 06-0916.

Respectfully submitted,

FINNEGAN, HENDERSON, FARABOW,
GARRETT & DUNNER, L.L.P.

Dated: January 11, 2002

By: 

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APPENDIX TO PRELIMINARY AMENDMENT DATED JANUARY 11, 2002

Amendments to the Title

Please amend the title, as follows:

TYRE-ASSEMBLING APPARATUS

Amendments to the Specification

On page 5, line 26 - page 6, line 6, please amend the paragraph beginning "In more detail, it is an object of the present invention . . .", as follows:

In more detail, [it is an object of] the present invention [to] provides a tyre assembling apparatus, [characterized in that] wherein each of said sectors comprises: a holding member defining an engagement seat [for] of an annular structure [of] for anchoring to the [bead being] bead-part of a carcass sleeve fitted on said drum; and a supporting member linked, relative to said holding member, in a position axially internal to the latter and movable between a first operating condition, in which it is axially spaced apart from the holding member to offer a supporting seat to at least one ply being part of said carcass sleeve, and a second operating condition, in which it is disposed close to the holding member to enable mutual approaching of said halves. The supporting members associated with the first and second halves, respectively, have abutment surfaces both facing each other and spaced apart from each other by a smaller amount than the stroke carried out by said halves between their spaced-apart condition and their

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ABSTRACT OF THE DISCLOSURE

A tyre-assembling apparatus includes an assembling drum, radial-movement devices, and at least one axial-movement actuator. The assembling drum includes first and second halves axially opposed along a geometric axis of the drum. Each of the halves includes a plurality of circumferentially-distributed radial sectors. The radial-movement devices associated with each of the halves selectively translate corresponding radial sectors between a contracted condition and an expanded condition. The at least one axial-movement actuator translates the halves relative to each other between an approaching condition and a spaced-apart condition. Each of the radial sectors includes a holding member and a supporting member. The holding member defines an engagement seat of an annular anchoring structure to a bead-part of a carcass sleeve fitted on the drum. The supporting member is linked, relative to the holding member, in a position axially-internal to the holding member and movable between first and second operating conditions.

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